

ABSTRACT OF THE DISCLOSURE

A robotic device has a base and at least one finger having at least two links that are connected in series on rotary joints with at least two degrees of freedom. A
5 brushless motor and an associated controller are located at each joint to produce a rotational movement of a link. Wires for electrical power and communication serially connect the controllers in a distributed control network. A network operating controller coordinates the operation of the network, including power distribution. At least one, but more typically two to five, wires interconnect all the controllers through
10 one or more joints. Motor sensors and external world sensors monitor operating parameters of the robotic hand. The electrical signal output of the sensors can be input anywhere on the distributed control network. V-grooves on the robotic hand locate objects precisely and assist in gripping. The hand is sealed, immersible and has electrical connections through the rotary joints for anodizing in a single dunk without
15 masking. In various forms, this intelligent, self-contained, dexterous hand, or combinations of such hands, can perform a wide variety of object gripping and manipulating tasks, as well as locomotion and combinations of locomotion and gripping.